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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/591,293
Filing Date: March 23, 2007
Appellant(s): GERARD ET AL.

Philippe Signore
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/28/2011 appealing from the Office action mailed 12/28/2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 11, 16-18 and 20-32 are currently pending and rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 6,661,339	Muirhead	12-2003
US 2005/0115973	Brandner	6-2005
US 6,627,016	Abare	9-2003
US 2002/0017527	Goto	2-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11, 16-18, 21, 22, 24-26 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muirhead (US 6661339) in view of Brandner (US 20050115973), both of record.

As to Claim 11, Muirhead discloses a system for fastening, by welding, a component to a motor vehicle fuel tank, the system comprising: a component (104, 121, 122) including a portion with a conical surface profile, the component including a tubular shape; a tank with an opening (120), a perimeter of which opening includes a conical surface profile; and a welded area (112) between at least one portion of the conical surface of the perimeter of the opening in the tank and at least one portion of the conical surface of the component, wherein the perimeter of the opening of the tank is a deformed portion of a wall of the tank, wherein the component and the tank are molded in one or more molds (102) including impressions corresponding to the conical surfaces, wherein the tank includes a multilayer structure and, along the entire surface where the component is fastened to the tank, a number of superposed layers is equal to a sum of a number of layers in the component and a number of layers in the tank, and wherein the multilayer structure includes at least two layers (210) of high-density polyethylene (HDPE) between which a layer (202) comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted (Fig. 10-13; Col. 7, ll. 12-56; Col. 10, line 41 - Col. 11, line 14).

The presence of process limitations on product claims, wherein the product does not otherwise patentably distinguish over the prior art, cannot impart patentability to the product. In re Stephens 145 USPQ 656 (CCPA 1965). Therefore, the limitation of the tank and component being molded in one or more molds including impressions corresponding to the conical surfaces has not been given patentable weight.

Muirhead does not expressly disclose the component includes a multilayer structure, wherein the multilayer structure includes at least two layers of high-density polyethylene (HDPE) between which a layer comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted.

However, Brandner discloses a fuel tank and a component, wherein the component (34) includes a multilayer structure, wherein the multilayer structure includes at least two layers (48, 50) of high-density polyethylene (HDPE) between which a layer (52) comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted (Fig 2 and 4; Par. 0017, 0018). Having the component be formed from a layer of EVOH sandwiched between two layers of HDPE helps to prevent permeation (Par. 0020).

Therefore, at the time of invention it would have been obvious to one of ordinary skill in the art to modify the system taught by Muirhead so as to form the component from a multilayer structure, wherein the multilayer structure includes at least two layers of high-density polyethylene (HDPE) between which a layer

comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted, as taught by Brandner, in order to help prevent fuel permeation.

As to Claim 16, Muirhead and Brandner disclose the fastening system according to Claim 11. Muirhead discloses the component includes at least one of a plate, a delivery tube, a fitting, a spout, a valve, or any other accessory of the fuel tank (Fig. 13; Col. 11, ll. 41-47).

In regard to Claim 17, the presence of process limitations on product claims, wherein the product does not otherwise patentably distinguish over the prior art, cannot impart patentability to the product. In re Stephens 145 USPQ 656 (CCPA 1965). As such, Muirhead and Brandner disclose a fuel system comprising a fuel tank and at least one accessory (104) (Fig. 10, 11 and 13; Col. 10, line 41 - Col. 11, line 1).

As to Claim 21, Muirhead and Brandner disclose the fastening system according to Claim 11. Muirhead further discloses the wall of the tank includes a bent portion defining the perimeter of the opening of the tank (Fig. 11 and 13).

As to Claim 22, Muirhead and Brandner disclose the fastening system according to Claim 21. Muirhead further discloses the conical surface of the perimeter of the opening in the tank comprises a cavity that receives the conical surface profile of the component (Fig. 11 and 13)

As to Claim 24, Muirhead and Brandner disclose the fastening system according to Claim 21. Muirhead further discloses the thickness of a wall portion of the tank forming the conical surface of the tank is a same thickness as a

thickness of a wall portion of the tank surrounding the conical surface of the tank (Fig. 11 and 13).

As to Claim 18, Muirhead discloses a method of manufacturing a fuel system, comprising: manufacturing a tank comprising an opening, a perimeter of which has a conical surface profile, the perimeter of the opening being made by deforming a wall of the tank; manufacturing a component (104, 121, 122) including a part with a conical surface profile, the component including a tubular shape; and welding at least one portion of the conical surface of the perimeter of the opening in the tank to at least one portion of the conical surface of the component, and wherein the tank and the component are manufactured by molding by using one or more molds (102) including impressions corresponding to the conical surfaces, wherein the tank each includes a multilayer structure and, along the entire surface where the component is fastened to the tank, a number of superposed layers is equal to a sum of a number of layers in the component and a number of layers in the tank, and wherein the multilayer structure includes at least two layers (210) of high-density polyethylene (HDPE) between which a layer (202) comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted (Fig. 10-13; Col. 7, ll. 12-56; Col. 10, line 41 - Col. 11, line 14).

Muirhead does not expressly disclose the component includes a multilayer structure, wherein the multilayer structure includes at least two layers of high-

density polyethylene (HDPE) between which a layer comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted.

However, Brandner discloses a fuel tank and a component, wherein the component (34) includes a multilayer structure, wherein the multilayer structure includes at least two layers (48, 50) of high-density polyethylene (HDPE) between which a layer (52) comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted (Fig 2 and 4; Par. 0017, 0018). Having the component be formed from a layer of EVOH sandwiched between two layers of HDPE helps to prevent permeation (Par. 0020).

Therefore, at the time of invention it would have been obvious to one of ordinary skill in the art to modify the system taught by Muirhead so as to form the component from a multilayer structure, wherein the multilayer structure includes at least two layers of high-density polyethylene (HDPE) between which a layer comprising an ethylene/vinyl alcohol copolymer (EVOH) is inserted, as taught by Brandner, in order to help prevent fuel permeation.

As to Claim 25, Muirhead and Brandner disclose the fastening system according to Claim 18. Muirhead further discloses the wall of the tank includes a bent portion defining the perimeter of the opening of the tank (Fig. 11 and 13).

As to Claim 26, Muirhead and Brandner disclose the fastening system according to Claim 25. Muirhead further discloses wherein the conical surface of the perimeter of the opening in the tank comprises a cavity that receives the conical surface profile of the component (Fig. 11 and 13).

As to Claim 28, Muirhead and Brandner disclose the fastening system according to Claim 25. Muirhead further discloses the thickness of a wall portion of the tank forming the conical surface of the tank is a same thickness as a thickness of a wall portion of the tank surrounding the conical surface of the tank (Fig. 11 and 13).

As to Claims 29 and 30, Muirhead and Brandner disclose the fastening system and method according to Claims 11 and 18, respectively. Neither expressly discloses wherein the conical surface of the component is defined by a circular arc as viewed in a direction perpendicular to the axis of the conical surface profile.

However, at the time of invention it would have been obvious to one of ordinary skill in the art to modify the component taught by Muirhead and Brandner so as to have the conical surface of the component is defined by a circular arc as viewed in a direction perpendicular to the axis of the conical surface profile, in order to increase the surface area of the conical surface profile and thereby allow for a larger welded area between the component and the tank. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. *In re Dailey et al.*, 149 USPQ 47.

As to claims 31 and 32, Muirhead and Brandner disclose the method and system according to claims 18 and 25, respectively. Muirhead further discloses the component covers the entire opening (Fig. 13, 19 and 20).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muirhead and Brandner as applied to claim 18 above, and further in view of Abare (US 6627016), of record.

As to Claim 20, Muirhead and Brandner disclose the method according to Claim 18. Neither expressly discloses the welding is hot-plate welding using self-centering hot plates or a robotic system controlled by a camera.

However, Abate discloses a molded fuel tank (1) with a plurality of components (4, 5, 6, 7), wherein the welding done on the tank is hot-plate welding using a robotic system with optical and laser scanning (Fig. 1; Col. 4, l1. 13-17; Col. 4, line 62 - Col. 5, line 19). Abate discloses the robotic system allows increased accuracy and repeatability of the manufacturing processes by making adaptive changes during the welding process to compensate for variations in the fuel tanks due to an inherent drawback of the molding process (Col. 3, l1.60-65).

Therefore, at the time of invention it would have been obvious to one of ordinary skill in the art to use hot-plate welding robots with optical and laser scanning, as taught by Abate, to form the fuel tank taught by Muirhead and Brandner in order to provide for increased accuracy and repeatability in the manufacturing process.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muirhead and Brandner as applied to claims 21 and 25 above, and further in view of Goto (US 20020017527), of record.

As to Claims 23 and 27, Muirhead and Brandner disclose the fastening system according to Claims 21 and 25, respectively. Muirhead does not expressly disclose the conical surface of the perimeter of the opening in the tank protrudes from a portion of the tank wall in a direction toward the component.

However, Goto discloses a component (2) integrally formed with a multilayer fuel tank (1), the fuel tank having an opening (1h), wherein a perimeter of the opening protrudes from a portion of the tank wall in a direction toward the component in order to allow for the attachment of internally treaded accessories (5) (Fig. 1, 2 and 4-12; Par. 0038, 0039 and 0042).

Therefore at the time of invention it would have been obvious to one of ordinary skill in the art to modify the fastening system taught by Muirhead and Brandner so as to form the conical surface of the perimeter of the opening in the tank protrudes from a portion of the tank wall in a direction toward the component, as taught by Goto, in order to allow for the attachment of already existing, internally threaded accessories.

(10) Response to Argument

Appellant alleges on Page 10 in the Brief that if Muirhead were modified to include the multilayer structure taught by Brandner that "there would be no

reason to keep the conical recess of Muirhead". The Examiner respectfully disagrees. The primary reference Muirhead meets all of the limitations of the claims except for the component being a multilayer structure made of a layer of ethylene/vinyl alcohol copolymer (EVOH) sandwiched between two layers of high-density polyethylene (HDPE). The secondary reference Brandner was used for the teaching of the multilayer structures of a component in order to prevent fuel permeation into the surrounding environment (Par. 0020), and was not used for the specific component of a fill nipple 22. As such, the component (104) of primary reference Muirhead was not being eliminated, as suggested in the first paragraph of Page 10 of the Brief, and the conical surface would still be in tact and serve the purpose disclosed by Muirhead.

Appellant alleges on Pages 10 and 11 in the Brief that modifying Muirhead to have the features of Brandner would lead one of ordinary skill in the art to weld accessories 125 of Muirhead directly to the tank. It appears from the arguments on pages 9-11 in the Brief that Appellant does not consider flange plate 104 of Muirhead to be a component, as Appellant suggests the modification of Muirhead in view of Brandner would lead one to weld accessories 125 of Muirhead directly to the tank. This is not the case, however, as the flange plate 104 of Muirhead constitutes as a component as per the list disclosed and claimed by Appellant (Page 6, ll. 29-32; Claim 16), and would still be necessary to carry accessories, as the component 104 was only modified to include a multilayer structure in order to prevent fuel permeation.

Appellant alleges on Page 11 in the Brief that component 104 of Muirhead fails to include "a tubular shape" as required by the claims. The Examiner respectfully disagrees, as component 104 includes tubular threaded portion 119 (Fig. 13, 19 and 20). As such, Muirhead meets the relevant limitations of the claims.

Appellant alleges on Pages 11-13 in the Brief that Muirhead and Brandner fail to disclose a tank where a number of superposed layers is equal to a sum of a number of layers in the component and a number of layers in the tank, as required by the claims, due to the inclusion of a cover 66 at the weld between the component and tank of Brandner and that the multilayer structure of Brandner is "unrelated to the specific permeability problem occurring at the weld". The Examiner respectfully disagrees. Brandner was used for the teaching of forming a component of a multilayer structure in order to reduce fuel permeation over prior art monolayer components (such as those taught by Muirhead) (Par. 0003 and 0020 of Brandner) and not for the specific component or cover taught by Brandner. Since the primary reference Muirhead teaches a number of superposed layers is equal to a sum of a number of layers in the component and a number of layers in the tank, modifying the component of Muirhead to include a multilayer structure would still have where a number of superposed layers is equal to a sum of a number of layers in the component and a number of layers in the tank and meet the limitations of the claims.

Appellant alleges on Pages 14-16 in the Brief that modifying the component of Muirhead to include a multilayer structure taught by Brandner would result in a tank which does not meet the limitation of "the thickness of a wall portion of the tank forming the conical surface of the tank is a same thickness as a thickness of a wall portion of the tank surrounding the conical surface of the tank", as required by Claims 24 and 28, due to the secondary reference Brandner teaching a tank with an increased wall thickness at the site of the weld between the component and tank. The Examiner respectfully disagrees. The primary reference, Muirhead, teaches the limitation of the thickness of a wall portion of the tank forming the conical surface of the tank is a same thickness as a thickness of a wall portion of the tank surrounding the conical surface of the tank, as is clearly shown in at least Fig. 13. The Examiner agrees with the Appellant's assertion that the secondary reference, Brandner, discloses a tank which has a greater thickness at the site of the weld between the component and the tank than a thickness of the tank surrounding the weld. However, the secondary reference was used only for the teaching of making a component out of a multilayer structure, and not for the specific tank and component structure. Since the tank of the primary reference, Muirhead, was not modified in any way, Muirhead meets the relevant limitations of the claim.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Brett Edwards/

Examiner, Art Unit 3781

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/Anthony Stashick/

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